April 17, 1987

CD-87-05(LD)

Dear Manufacturer:

SUBJECT: Determination of a New Adjustable Parameter
(40 CFR 86.085-22(e)(1)(i))

The enclosed letter to American Honda Motor Company (Honda) addresses a specific case in which the Environmental Protection Agency (EPA) determined a new parameter to be adjustable. In addition to notifying manufacturers of this specific decision, this letter is being transmitted to all manufacturers because it serves as an example of how EPA reviews new parameters as potential adjustable parameters (as provided for in 40 CFR 86.085-22(e)(1)(i)).

If a current parameter changes in the form of adjustment, even though the function remains the same, the parameter may be considered a new adjustable parameter. In the specific situation addressed in the letter, the form of the ignition timing adjustment changed (from rotating the distributor to a remote electronic adjustment) but the function (ignition timing) remained the same. Therefore, EPA concluded that the device qualified as being new.

Ignition timing was originally established as an adjustable parameter in the Federal Register (Ref. 49 FR 2960, et seq.) dated January 12, 1979. EPA deleted it as an adjustable parameter in an October 28, 1980, guidance letter to industry. While this deletion was effective upon issuance of the letter, it was not reflected in 40 CFR 86.085-22(e)(1)(i) until publication of the Federal Register (Ref. 48 FR 52170, et seq.) on November 16, 1983. Although the guidance letter did not specifically state the form of ignition timing adjustment which was deleted, the January 12, 1979, Federal Register focused specifically on distributor adjustment. Thus, EPA's determination to delete ignition timing as an adjustable parameter applied only to the distributor adjustment form of ignition timing adjustment. EPA concluded that the determination made in the October 1980 guidance letter did not apply in the Honda case because this is a new adjustable parameter.

This new form of ignition timing adjustment greatly simplifies the adjustment procedure, thereby greatly increasing the likelihood of intentional in-use maladjustments. This is

particularly likely here because the adjustment settings for spark advance and retard were labeled on the device.

Note that even though the determination that this form of ignition timing adjustment is considered an adjustable parameter for our testing purposes, manufacturers are not necessarily required to seal the parameters. If the vehicle meets emission standards when tested in any position within the adjustable range, sealing is not required.

EPA encourages manufacturers to submit new parameters to EPA with adequate leadtime so a decision regarding the adjustability of a parameter can be made prior to vehicle production. By submitting their parameter for review with adequate leadtime prior to scheduled vehicle production, Honda was able to take the necessary action without production delays. EPA will make every reasonable effort to facilitate product innovations by advising the manufacturer regarding new adjustable parameters in a timely manner.

Sincerely,

Robert E. Maxwell, Director
Certification Division
Office of Mobile Sources

Enclosure

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

ANN ARBOR, MICHIGAN 48105

OFFICE OF
AIR AND RADIATION

September 29, 1986

Mr. Brian Gill, Senior Manager
Certification Department
American Honda Motor Co., Inc.
100 W. Alondra Blvd.
Gardena, CA 90247

Dear Mr. Gill:

This letter clarifies EPA's decision in determining Honda's proposed ignition timing screw intended for use in its 1987 model year Acura Legend vehicles as an adjustable parameter. This decision is based on 40 CFR 86.085-22(e)(1)(i) which specifies those parameters which EPA may determine as adjustable. As indicated in the May 29, 1986 "Dear Manufacturer" letter, a phrase was inadvertently omitted from paragraph 85-22(e)(1)(i) upon republication of the 1983 regulations. When included in this paragraph, the phrase "on carburetted, gasoline-fueled vehicles or any parameter," allows EPA to add new parameters to the list of previously established adjustable parameters. The regulations state that parameters will be considered adjustable without advance notice if they are "physically capable of being adjusted, may significantly affect emissions, and were not present on the manufacturer's vehicles (or engines) in the previous model year in the same form and function."

EPA has determined that the three requirements necessary to classify this parameter as adjustable without advance notification have been satisfied in this case: The parameter can be adjusted, in fact you indicated you intend to describe the adjustment process in your shop manual. The effect of spark advance on emissions is well documented in technical

literature. Lastly, although the function (ignition timing adjustment) was present on Honda's previous model year Acura Legend, the method of adjustment or form.changed.

The regulations (Ref. 40 CFR 86.085-22 (e)(l)(i)) indicate that a parameter is considered new if either the form or function of the adjustment change. Our October 28, 1980 letter deleted distributor ignition timing from consideration as an adjustable parameter. The decision was based on a study of in-use maladjustment. The study concluded that misadjustments of ignition timing resulting in a spark advance were as likely as spark retard misadjustments. Furthermore, the net affect on in-use emissions was not significant. The results of the study and its conclusions are applicable only to distributer-adjustable ignition timing. When the form of adjustment changes (from rotating the distributer to a remote electronic adjustment) the adjustment is considered a different parameter even when the function (ignition timing) remains the same.

This decision allows Honda two methods of compliance. The adjustable parameter may be adequately sealed or compliance must be shown at all settings in the adjustable range.

If Honda elects to seal this parameter, 40 CFR 86.085-22 (e)(2)(i) specifies the requirements. A final determination of accessibility will be made by EPA and will require actual hardware to evaluate and technical information to aid our evaluation.

If Honda does not adequately seal this parameter, it will be adjusted during compliance testing. Honda can aid EPA in its determination of how to adjust the parameter by providing test data or analyses which address the effect on emissions for various adjustments. If the worst-case setting (or settings) can be determined by EPA prior to testing, Honda may conduct testing on all EDV's at the worst-case setting (or settings) and the nominal setting. This testing scenerio would avoid automatic confirmation of those test vehicles (note that the vehicles may be confirmatory tested for other reasons). Regardless of the testing required to determine emission compliance, only the testing conducted at the nominal setting will be used in the fuel economy program.

In summary, EPA has determined Honda's ignition timing screw is an adjustable parameter. This determination is based on the

change in the form of this ignition timing adjustment from previous model years. Honda must therefore prove this device's adjustment will not substantially affect emissions or that the device is adequately inaccessible to discourage unwarranted adjustment. Please contact me or Matt Wagner of my staff if you have questions concerning this letter.

Sincerely yours,

Eldert A. Bontekoe, Leader
Certification Branch
Certification Division
Office of Mobile Sources